

## **OLPC Regional Case Studies: Asia, Africa, Europe and Latin America**

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### **Introduction**

This document provides resources in the form of case studies and experiences of launching 1:1 programmes. The resources will give an indication of the some of the steps that might be taken towards developing 1:1 projects in terms of planning, monitoring and evaluation. They illustrate the nature of the process that countries have been engaged in. It can be difficult to picture how a planning framework will be used to determine a programme's current position and where it wants to go. These case studies demonstrate how different countries in 4 continents set about preparing and implementing their 1:1 projects.

At the end there is an additional resource list that offers more information about other pilots around the world.

The Planning Team should review these case studies bearing in mind that your local position and needs may well be quite different from the situations described in the case studies.

## Case Study 1: Ethiopia (Africa)

<b>Ethiopia</b>	<b>Innovative Learning in Ethiopian Primary Schools<sup>1</sup></b>
<b>Implementation partnership</b>	Ministry of Capacity Building, Government of Italy (city of Florence), GTZ, Eduvision, Mc Millan, Wikipedia, e-Books for Africa (merging with G-Store) Potential partner: inWent
<b>The Vision for Ethiopia</b>	The overall vision for Ethiopia is to provide all 14 million students in Ethiopian primary schools with notebooks.  While the concept of ICT provision uses as a concrete example the OLPC notebook, it will work with any other device that fulfils the requirements for 'Innovative Learning in Ethiopian primary schools'.
<b>The Five Ethiopian Principles</b>	<b>e-Books:</b> The quantity and the quality of eBooks will be increased for accessibility of customized content  <b>e-Library:</b> All educational material available in digital format that is going to be used within this project in Ethiopia will be made accessible in an eLibrary  <b>Direct broadcast:</b> The implementation of the project will use as much as possible the existing infrastructure (school.net and plasma screens) in Ethiopia.  <b>Interactive learning:</b> Interactive learning will be the driving idea for the educational concept in Ethiopia  <b>Innovative learning:</b> Students graduating through this approach are expected to acquire key competences, such as problem solving techniques, communication skills and the ability to work in teams.
<b>The Five Enablers</b>	<b>Child ownership:</b> Each Ethiopian child should own his or her own machine and view it not as government property, but as a personal medium, cherished like a bicycle  <b>Low ages:</b> The laptop is designed for the use of children of ages 6 to 12, covering the years of the elementary school but nothing precludes its use earlier or later in life.  <b>Saturation:</b> "Digital saturation" can be a whole country, a region, a municipality or a village, where every child will own a laptop. The whole community will become responsible of the program and the children will receive support of many institutions, individuals and groups of this community.

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<sup>1</sup> Excerpted from:

- Andualem, E. *et al* May 2008 *OLPC in Ethiopia*. Addis: MoE (Internal Report)
- Clarke, D. And Swarts, P. 2008. *Trip Report Ethiopia*. Nairobi: GeSCI (internal document)
- Everts, B., Harren, M. and Hollow, D. 2008. *Etiopia Implementation Report, September – December 2007* [Online]. Available from: Eduvision <http://www.gq.rhul.ac.uk/ict4d/eduvisionethiopia.pdf> [Accessed 14 April 2008]
- Hartel, H. 2008. *Low-cost devices in educational systems: The use of the "XO-Laptop" in the Ethiopian Educational System* [Online]. Available from: GTZ <http://66.102.9.104/search?q=cache:c3S44qPGv8J:www.gtz.de/de/dokumente/gtz2008-en-laptop>. [Accessed 5 April 2008]
- OLPC Ethiopia [Online]. Available from: [http://wiki.laptop.org/go/OLPC\\_Ethiopia](http://wiki.laptop.org/go/OLPC_Ethiopia) [Accessed 17 September 2008]
- Rolf, T. 2007. *Innovative Learning in Ethiopian Primary Schools*. Addis: GTZ

## Ethiopia

### Innovative Learning in Ethiopian Primary Schools<sup>1</sup>

**Connection:** Laptops are connected to each other - if one laptop is connected to the Internet, the others will follow to the web - learners in the neighborhood are thus connected to chat, share information on the web, gather by videoconference, make music together, edit texts, read e-books and enjoy the use of collaborative games on line.

**Free and open source:** A world of great software and content will be used to make this project succeed both open and closed, while there will be no restrictions upon third parties to work with proprietary software.

#### Deployment phases

##### **Pilot phase – April 2007**

- 150 laptops
- 2 urban primary schools in Addis Ababa - Menelik II and Atze Noad
- 11 teachers
- Grades 2 and 7

##### **Scaling up phase – September 2008**

- 5000 laptops
- 2 urban and 2 rural primary schools:
  - 2 urban – Menelik II/ Atze Noad in the city of Addis Ababa
  - 2 rural - Rema (solar powered) in the Amhara region/ Muuloo Sayyoo in the Oromia region
- 220 teachers
- Grades 1 to 8

**Note:** In Brymar 500 laptops and 500 solar panels are being deployed

#### Infrastructure

##### **Equipment and access**

- All students in pilot and upscaling projects assigned OLPC XO Beta-2 machines for school and home use
- Teachers given laptops to take home and use at anytime
- Exploration of OS platforms – the Freedom Toaster (referred to as Open Toaster in Ethiopia) platform developed by the Shuttleworth Foundation and the e-Go platform which focuses on activities supporting e-health and e-entrepreneurship

##### **Networking and connectivity**

- First option: attach one of the XO laptops to already existing network using the D-Link .This XO laptop equipped with an external disk drive, should be capable of performing as a school server for small (less than thirty laptop) schools.
- Second option: set up the server using the active antenna which is already prepared for the server. This XS is environmentally rugged, very low power school server for up to 150 students. The power specifications of the School server are also important. Many schools do not have adequate, or regular, power. While the power consumption should be minimized (30W is a good target).

##### **Capacity building**

A three stage support system is in position

- Stage 1- student capacity developed to solve small technical problems
- Stage 2 – technically versed teachers identified and equipped with extra training to support at school level
- Stage 3 – national support team of on.e reachable by all teachers

## Ethiopia

### Innovative Learning in Ethiopian Primary Schools<sup>1</sup>

#### Content

The project is committed to the principle of Open Source - developed as an open platform and distributed with open-source software. However there are no restrictions upon third parties to work with proprietary software.

- Collaboration with Eduvision to:
  - digitize all local language content for installation on the XO's (creating e-textbooks which can be read like normal textbooks)
  - develop a *Melepo* software tool to embed parts of each e-textbook with notes, questions and exercises prepared by local experts
  - embed interactive functionalities within the e-textbooks for opening/ choosing chapters/ selecting sections/scrolling/ moving from one page to another/ opening images/ opening questions/ inputting answers/ annotations/ highlighting/ pop-up menus/ authoring teacher designed tests or worksheets
  - **Content languages:** Amharic, English, Orimifa and Tigray
- Collaboration with Macmillan, Wikipedia and e-Books Africa to:
  - embed software to provide supplementary materials on Ethiopian history and health education through links within the e-textbooks
  - build up an electronic database/ library of information and supplementary content in different forms to be stored on the servers in the schools – multimedia, online encyclopedias, dictionaries, games, exam banks and experimental simulation
- OLPC default software – Sugar-based applications such as e-toys

**Next steps:** develop local content and subject related software hiring local software developers supported by international software developers

#### Teacher Professional Development

Training focused on three basic levels - the laptop machine itself, learning methods and the use of content

##### Pilot Training

- Training of 11 teachers
- Five sessions of about three hours each focused on basic applications such as read, write, browse, camera, etc. were covered.
- Two sessions focused on teachers developing lesson plans for first classroom activities with their students, which was then discussed by the group. The concept followed by the local experts is strongly oriented towards the OLPC idea that teachers should develop their own lesson plans and not follow previously constructed plans.
- In class and after class support for a total of 14 lessons.

##### Scaling up Training

- Training of 220 primary school teachers in four schools found in Addis Ababa, Oromia region and Amhara Region.
- Linux training introducing Ubuntu.

##### Future training

- Proposal to develop a sequence of videos where the use of all XO-application is demonstrated.
- Preparation of a series of prepared model lessons where the didactical value of computer use is demonstrated. Suitable tools to be developed which enable teachers to change or re-construct such lessons according to their own teaching style and needs.

#### Monitoring and Evaluation

- The aim of the M&E activities for olpc in Ethiopia is to assess the feasibility and impact of introducing innovative learning' in Ethiopia consisting of capacity development, XO laptops and Melepo.
- Through a variety of methods outcomes were assessed of the capacity development activities and the teachers, students and additional stakeholders' perception of the programme (awareness and

## Ethiopia

### Innovative Learning in Ethiopian Primary Schools<sup>1</sup>

ownership).

- Methodological approaches utilized in collecting data included:  
**Internal:** Structured classroom observation, focus groups with teachers/ students, baseline tests, questionnaires, structured interviews, software critiques from after school clubs, teacher training feedback, teacher diaries and student diaries  
**External:** interviews with parents and community members to devices effects in contributing to community development.
- Data collected is stored on a local database, access to the database is granted to all stakeholders involved.
- **Key findings** from pilot phase evaluation indicated:
  - **changes in teacher and learning style:** Towards the end of the test period teachers observed using structured group activities and competitions to teach their classes ...teacher realization of the need to create structured lesson plans to introduce XO laptops ...many teachers incorporating daily lesson planning into their other classes ...teacher provision of individualized assistance ...student collaboration, peer-to-peer support and small group work ...higher student motivation and performance
  - **effect of age on impact:** Due to rote-based approach used with the younger students (1st to 4th grades) there is little perceived need for individual interaction with textbooks. Older students receive the greatest benefit from the technology.

## Case Study 2: Nepal (Asia)

<b>Nepal</b>	<b>The OLPC Nepal Project<sup>2</sup></b>
<b>Implementation Partnership</b>	Department of Education (DoE) at the Ministry of Education and Sports and Sajha Sikchya Epaati (Open Learning Exchange, Nepal)
<b>Mission</b>	<ul style="list-style-type: none"><li>•</li><li>• Develop high-quality interactive digital learning materials that conform to Nepal's national curriculum.</li><li>• Maintain a web-based repository of open, free, and high quality elementary and secondary educational resources for teachers and students.</li><li>• Build the Nepali government's capacity to independently develop, enhance and maintain ICT-based teaching-learning materials at the primary and secondary school levels.</li><li>• Implement a plan to provide universal access to primary school level ICT-based teaching-learning materials by 2015.</li><li>• Conduct research and evaluation concerning the effectiveness of the different educational resources and approaches used.</li></ul>
<b>Deployment phases</b>	<p><b>Test phase – 2008</b></p> <ul style="list-style-type: none"><li>▪ 2 test schools in the outskirts of Kathmandu Valley in Lalitpur district – Bishwamitra Ganesh Lower Secondary School and Bashuki Lower Secondary School</li><li>▪ Grades 2 and 6</li><li>▪ 135 students</li><li>▪ 20 teachers</li></ul> <ul style="list-style-type: none"><li>▪ 1 primary school in Kavre district</li><li>▪ 15 students</li></ul> <p>Class 2 chosen over class 1 due to:</p> <ul style="list-style-type: none"><li>• large portion of schoolchildren who do not attend preschool</li><li>• grade one children still adjusting to school environment</li><li>• class 2 children accustomed to school and young enough for evaluation measure testing how well initiative helps young children.</li></ul> <p>Class 6 chosen:</p> <ul style="list-style-type: none"><li>• due to large numbers of students who drop out at this level</li><li>• for testing out more complex learning activities and</li><li>• for verifying how well strategies work with higher subjects</li></ul>
<b>Infrastructure</b>	<p><b>Equipment and access</b></p> <ul style="list-style-type: none"><li>• 200 laptops</li><li>• 135 given to students</li><li>• 20+ given to teachers</li></ul>

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<sup>2</sup> Excerpted from:

- Bhatta, S. D. 2008. *Tackling the Problems of Quality and Disparity in Nepal's School Education: The OLPC Model*. Kathmandu: OLE
- OLPC Nepal [Online]. Available from: [http://wiki.laptop.org/go/OLPC\\_Nepal#Implementation](http://wiki.laptop.org/go/OLPC_Nepal#Implementation) [Accessed 17 September 2008]
- Open Learning Exchange (OLE) Nepal [Online]. Available from: <http://blog.olenepal.org/> [Accessed 17 September 2008]

## **Nepal**

### **The OLPC Nepal Project<sup>2</sup>**

#### **Networking and connectivity**

- Nepal has created their own server and hope to roll this out. Limitations diagnosed for 'chatty' OLPC mesh. Recommendation is an infrastructure access point (wifi) with school server including a jabber service.
- Power racks built for charging laptops. Low battery requires charging rack for a few hours.
- Connecting schools together is one level of challenge, bandwidth to the internet is the next level.

#### **Capacity building**

This training regimen is intended for participants who already know the basics of the XO and Sugar, such as teachers who has participated in the professional development programmes

- 1<sup>st</sup> stage: Training of technically inclined teachers
- 2<sup>nd</sup> stage: include talented students and community members

## **Content**

- OLPC default software – Sugar-based applications such as e-toys
- Collaboration with OLE to:
  - develop a set of curriculum-based, open-source, platform-independent interactive learning materials for Mathematics and English in grades 2 and 6
  - build an open access basic digital library that can be accessed wirelessly by students in test schools using a network installed specifically for the project

Mathematics and English chosen as Nepalese children perform very poorly in these areas on standardized exams. They are also the most valued skills and areas in which the project can make the most positive impacts

## **Teacher Professional Development**

- Teacher training package designed to empower teachers to integrate ICT-based educational materials in the teaching-learning process so that they can independently design and implement lesson plans incorporating ICT-based materials.
- Training consists of two major segments:
  - a) a **4 day intensive residential, out-of-school training** that focuses on giving the teachers hands on experience in integrating digital educational materials and ICT-based teaching approaches in the regular classroom instruction process and
  - b) a **4 day training in the teachers' regular classrooms** where they get to implement the integrated lesson plans they developed during the 4 day residential training.
- Gap between the two segments. During this gap, the teachers play with the computers on their own and become even more familiar with the laptop and the available digital educational materials.
- Before the 3-day in-class training, the teachers themselves organize and lead interaction programs with parents/guardians and other stakeholders in their communities to introduce the new concept and generate community support.
- Teachers are highly respected members of the local community and therefore more capable of garnering community support for this new idea than outside "experts".

Content covered in the training included the following:

1. Using the XO: introduction to the different components of the XO according to the most frequent tasks the user would have to perform. Main goal: help participants overcome their fear of computers and technology.
2. Classroom arrangement/management: arrangement of the classroom furniture to maximize XO protection and maximize interaction (both between students and between students and teachers); formulating classroom rules and job lists.
3. Education theory: Piaget's theory of cognitive development, Vigotsky's theory on scaffolding, Papert's emphasis on interactive learning; experiment's to illustrate some of these theories.
4. Overview of digital content available: E-paati interactive activities and e-library.
5. Exercises with E-Paati interactive activities: how these activities enable students to learn new

## Nepal

### The OLPC Nepal Project<sup>2</sup>

concepts, provide practice exercises, and give opportunities for self-evaluation while emphasizing the “fun” element in learning.

6. Exercises with the OLE electronic library: exploration of the different sections of this full-text library and introduction to how the user can browse the library sections, search for specific items, and read books on the XO.
7. Model lesson: demonstration of a full grade 2 class period to show how E-paati activities can be integrated into the regular classroom teaching-learning process (included non-computer pre-activities, E-paati interactive activities, and post-activities).
8. Practice teaching: volunteers among the trainees designed and conducted a full class that fully integrated E-paati interactive activities.
9. Making integrated lesson plans: participants worked in pairs to design lesson plans integrating E-paati activities in their regular classes.
10. Planning for interaction sessions with parents/guardians and other stakeholders in the community

Teacher training manuals include:

- [OLE Nepal Teacher Trainer Manual 2008](#)
- [Image:Laptop Pictures March 28, 08.ppt](#)
- [Image:XO tutorial March, 08.doc](#) XO and Sugar tutorial -- Word format
- [Image:XO tutorial March, 08.pdf](#) XO and Sugar tutorial -- PDF format

## Monitoring and Evaluation

- Formative evaluation study carried out June-August 2008
- The objective of the study was to assess on-going project activities in the two test schools and to determine how the implementation could be altered or improved
- The study is based on information collected from survey questionnaires targeting teachers, head-teachers, students in grade 6 and their family members, some school management members, one-to-one meetings with teachers, school records, the OLE Nepal blog (<http://blog.olenepal.org>) and informal discussions with OLE Nepal Officials
- Some **key findings** from the formative evaluation on the teacher training included:

**Residential training:** Teachers found the following aspects of the residential training useful:

- Encouraging peer-learning (learning from their colleagues rather than simply from the instructor)
- Information about how to use laptop for instructional purposes to make teaching more effective
- Sessions on how to make lesson plans
- An opportunity to meet colleagues and learn from them

*The overwhelmingly majority of teachers thought that the training materials were inadequate and wanted the focus to be more on the practical rather than the theoretical aspects.*

**In-school training:** Teachers found many aspects of the in-school training useful, particularly lesson planning practice where:

- The habit of incorporating lesson plans in their teachings was encouraged
- Effective time management: how best to allocate time
- Teaching about how to present materials in the classroom
- Learning when and how to use laptop in the class

*All teachers found it useful to review lesson plans together in a group and to attend laptop classes conducted by colleagues and observe the class.*

*Most teachers in both test schools feel that their workload has increased significantly.*

Full report available at: <http://blog.olenepal.org/index.php/archives/321>

## Case Study 3: Uruguay (Latin America)

<b>Uruguay</b>	<b>Uruguay Ceibal's Project<sup>3</sup></b> (Ceibal = "Conectividad Educativa de Informática Básica para el Aprendizaje en Línea", "Educational Basic Connectivity for online learning") <a href="http://olpc-ceibal.blogspot.com/">http://olpc-ceibal.blogspot.com/</a>
<b>Implementation Partnership</b>	Presidency, LATU (Laboratorio Tecnológico del Uruguay, Technical Lab of Uruguay, executing agent), CODICEN (Consejo Directivo Central de la educación pública, Public education coordination unit), CEP (Consejo de Educación Primaria, Primary education coordination unit), ANTEL (public ISP, provides connectivity), MEC (Ministerio de Educación y Cultura, Ministry of education), AGESIC (Agencia para la Sociedad de la Información y el Conocimiento, Agency for the Information Society) and ANII (Agencia Nacional de la Investigación y la Innovación, Agency for research and innovation)
<b>Mission</b>	To connect 1:1 all public primary children 1st-6th by 2009. Approximately 340.000 children and 16.000 teachers. First country to commit to large scale nationwide deployment of OLPC. Though OLPC won the original bid in 2007 against Classmate, it is not said that XO machines are the only devices to be used. Strategic objectives: <ul style="list-style-type: none"><li>⇒ Equal opportunity for all students regarding access to technology (rural/urban)</li><li>⇒ Democratization of knowledge</li><li>⇒ Strengthening of the learning process at school and at home</li></ul>
<b>Deployment phases</b>	One pilot and 3 deployment phases. <ul style="list-style-type: none"><li>- May 2007: pilot in a few schools ("El Cardal")</li><li>- 2007: pilot is extended to the region ("Florida")</li><li>- 2008: rest of the country except the capital city</li><li>- 2009: capital city of Montevideo</li></ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"><li>• Connectivity provided by the national ISP, Antel. All of the territory of Uruguay is connected to the Internet. Some concerns rose about the use of the connectivity and security.</li><li>• <i>Electricity is available in all schools.</i></li></ul>
<b>Content</b>	<ul style="list-style-type: none"><li>- Standard Operating system, sugar and some tools translated to Spanish</li><li>- Educational Portal provides material for teachers and students</li><li>- Lots of shared spaces like students and teachers blogs</li></ul>
<b>Teacher Professional Development</b>	<ul style="list-style-type: none"><li>• Centralized coordination on teacher training, and decentralized execution of training in 19 regions.</li><li>• Initial training (physical) with remote support. Other continuous training to be determined.</li><li>• Virtual exchange spaces for teachers</li></ul>
<b>Monitoring and Evaluation</b>	<ul style="list-style-type: none"><li>• Careful analysis during the pilot (see references)</li><li>• Little public information about what is happening and has been evaluated exists</li><li>• Continuous evaluation plan contains:<ul style="list-style-type: none"><li>○ Evaluation of the process</li><li>○ Evaluation about what has been achieved</li><li>○ Evaluation in order to understand the new paradigm</li><li>○ Evaluation must include teachers, students, parents, IT teachers, supervisors)</li><li>○ Include the educational practices</li><li>○ Include teacher training and support (courses, workshops, online)</li><li>○ Analyze infrastructure (connectivity, support)</li></ul></li></ul>

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<sup>3</sup> Excerpted from:

Book on the project (July 08, in Spanish) <http://www.ceibal.edu.uy/gobiernoelectronico/>

Official test data of one of the pilots (in Spanish) [http://wiki.laptop.org/go/OLPC\\_Uruguay/Cardal](http://wiki.laptop.org/go/OLPC_Uruguay/Cardal)

Report on the pilot by IDRC [http://www.idrc.ca/uploads/user-S/12170045951InformeIDRCe08\\_final.pdf](http://www.idrc.ca/uploads/user-S/12170045951InformeIDRCe08_final.pdf) (spanish)

**Uruguay**

**Uruguay Ceibal's Project<sup>3</sup>**

(Ceibal = "Conectividad Educativa de Informática Básica para el Aprendizaje en Línea", "Educational Basic Connectivity for online learning") <http://olpc-ceibal.blogspot.com/>

## Case Study 4: Ireland (Europe)

**Ireland**

**The Empowering Minds Project<sup>4</sup>**

**Implementation Partnership**

St. Patrick's College of Education, Dublin City University ([www.spd.dcu.ie](http://www.spd.dcu.ie))  
The National Centre for Technology in Education ([www.ncte.ie](http://www.ncte.ie))  
The Higher Education Authority  
Media Lab Europe, MIT Media Lab Laboratory, Boston

**The Three Core Principles of the EM Project**

- To encourage children and teachers to develop technological fluency with project-based learning
- To use technology as an integrating agent for learning
- To establish a new model of teacher professional development, in which teachers are centrally included in the process of pedagogical activity design

**Deployment phases**

**Test phase**

**1999**

- 4 schools (urban-disadvantaged, suburban-advantaged, normal suburban and rural)
- 8 teachers

**2000**

- Expansion to 12 schools – more small rural and disadvantage schools, single sex schools and children with special needs

**2008**

- 50 schools

**Infrastructure**

**Equipment and access**

- School technology equipment purchased with grants and funds raised by school communities
- Empowering Minds project materials - Logo Microworlds programmable bricks - distributed to project schools

**Networking and connectivity**

- Every school has access to internet
- Electricity is available in all schools

**Content**

- Traditional curriculum
- Programmable model building projects to engage students in a variety of learning activities – discussion,

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<sup>4</sup> Excerpted from:

- Butler, D. 2007. A constructivist view of what it means to be digitally literate: Learning in 21<sup>st</sup> century classrooms. *Digital Kompetanse*. 2 (2), pp61–77
- Butler, D. (2001) Reconceptualising Teacher Learning in a Digital Context [Online]. Available from: <http://empoweringminds.spd.dcu.ie/documents/doc-index?category=temporary> [Accessed 3 October 2008]
- Butler, D. And Strohecker, C. 2001. Developing Self-Esteem and Empowerment through Expressive Computational Materials [Online]. Available from: <http://empoweringminds.spd.dcu.ie/documents/doc-index?category=temporary> [Accessed 3 October 2008]

**Ireland**

**The Empowering Minds Project<sup>4</sup>**

writing, drawing, designing, computer programming, video-making - linked to mathematics, language, arts, culture and engineering

**Teacher Professional Development**

The '**Knowledge of Practice**' Model for Teacher Professional Development

- Model based on current thinking on learning and a social constructionist epistemology
- Shift of focus in continuous professional development from:
  - Teaching to learning
  - Once off/ stand alone inputs for teachers to a continuous growth and development process towards self determination
  - Imposed course delivery from the top to teacher identified (bottom up) initiatives

**Intensive workshops**

- Intensive face-to-face workshops of 3 to 5 days
- Teachers '**immersed**' during the workshop in supportive constructivist-learning environment that promotes and encourages each individual to 'learn about learning'
- Teacher-learner at the centre and their experiences, needs and interests constitute the starting point for the learning process
- Teachers work side by side with more experienced practitioners

**Workshop Learning Environment**

- Workshop organizers facilitate self directed learning projects rather than enforcing pre-determined programmes
- Participants set their own learning goals as they work with their chosen projects
- Approach adapted in the workshops underpinned by a constructionist epistemology in which:
  - learners engage with open-ended problems over a protracted length of time
  - collaboration is encouraged
  - reflection is explicitly incorporated
  - diverse issues are addressed ranging from how schools are structured for learning to the inadequacies of evaluation procedures
- Workshop computational materials chosen to challenge teachers' beliefs and assumptions about teaching and learning. Materials need to be:
  - conversational – encouraging feedback and negotiation
  - connective – promoting personal relationship/ connection to powerful ideas
  - challenging – no right answers/ more than one way

**School-based Learning**

- Valuing of teachers' prior and on-going experiences in the classrooms of critical importance as these form their understanding and beliefs about learning
- Teachers use of their own teaching practise as an 'object to think with' i.e. using their own practice for experimentation/ trying out new ideas
- Ownership develops:
  - as children and teachers engage in their projects, individually and collaboratively
  - as each participating school contributes to the project

**Professional Development Support Structures**

- Workshop format of building activity projects followed by reflexive discussions
- Regular group meetings for review
- Frequent classroom visits to new teachers by experienced practitioners
- School cluster meetings
- Buddy system operating in schools (each teacher assigned a 'buddy' for support)
- E-mail
- Web-based platform (<http://empoweringminds.spd.dcu.ie/>)

**Ireland      The Empowering Minds Project<sup>4</sup>**

**Monitoring and Evaluation**      **Monitoring** approaches utilized in collecting data included classroom observation, focus groups with teachers/ students, teacher professional development feedback and teacher diaries

Findings from the project's **evaluation** study highlighted the following conditions as necessary for teacher learning:

- Provocative engaging and challenging computational materials
- Workshops designed around 'immersive' learning environments which engage teachers in challenging learning experiences informed by their own interests, needs and experiences
- Embedding teachers learning in their own practice and using classroom practice as an 'object to think with'
- Collaboration with a community of practitioners involved in similar work across a range of contexts which promotes discussion, criticism and reflection
- Adequate time ( a minimum of 3 years) to allow teacher self directed learning to develop and changes to happen

## Other relevant links

### Pilots:

- Brazil: [http://www.lec.ufrgs.br/index.php/Projeto\\_UCA\\_-\\_Um\\_Computador\\_por\\_Aluno](http://www.lec.ufrgs.br/index.php/Projeto_UCA_-_Um_Computador_por_Aluno) (Portuguese)
- Haiti Pilot: <http://waveplace.com/>
- Mongolia: <http://www.olpcnews.com/countries/mongolia/>
- Peru Pilot information: Official site of the test: [http://wiki.laptop.org/go/OLPC\\_Peru/Arahuay](http://wiki.laptop.org/go/OLPC_Peru/Arahuay)

### OLPC:

- Official site: [http://laptop.org/index.en\\_US.html](http://laptop.org/index.en_US.html)
- Official wiki: <http://wiki.laptop.org/go/Home>
- Status per country (official color-coded map): <http://wiki.laptop.org/go/Image:Olpcmap.jpg>
- A blog with lots of interesting info, also about countries implementing: <http://www.olpcnews.com/>
- Deployment guide for large scale [http://wiki.laptop.org/go/Deployment\\_Guide](http://wiki.laptop.org/go/Deployment_Guide)